



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,966	07/28/2003	Patricia A. Wang	200209420-1	6184

22879 7590 11/15/2006

HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

EXAMINER

SHOSHO, CALLIE E

ART UNIT	PAPER NUMBER
----------	--------------

1714

DATE MAILED: 11/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/628,966

Applicant(s)

WANG ET AL.

Examiner

Callie E. Shosho

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19,22-42,45 and 46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19,22-42,45 and 46 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/28/06 has been entered.

Claim Objections

2. Claim 3 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim 3, which depends on claim 1, recites "said black pigment is self-dispersed" while claim 1 recites that the black ink includes "at least one self-dispersed black pigment". Thus, claim 3 fails to further limit the scope of the claim on which it depends, namely claim 1, given that claim 3 recites same limitation already recited in claim 1, i.e. black pigment is self-dispersed. In light of the amendment to claim 1, should claim 3 be cancelled?

It is noted that the same objection arises with respect to claim 26, which depends on claim 24, and recites same claim limitation as claim 24, i.e. black pigment is self-dispersed.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-19, 22-23, and 31-37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

(a) Claim 1 recites “pigment-based inkjet ink set comprising a black ink and at least one dye-based color ink”. Thus, the scope of claim 1 is confusing given that it is not clear how a “pigment-based” ink set comprises a “dye-based” ink. Based on paragraph 13 of the present specification, it is suggested that the above phrase is re-written as “inkjet ink set comprising a pigment-based black ink and at least one dye-based color ink”.

(b) Claim 2, which depends on claim 1, recites the limitation "said black pigment" in line 1. There is insufficient antecedent basis for this limitation in the claim. It is suggested that the cited phrase is changed to “said self-dispersed black pigment”

(c) Claim 8 and claim 31 each recite formula for “said styrene-maleic anhydride copolymer” However, the scope of each of the claims is confusing given that the formula appears to be that of hydrolyzed styrene-maleic anhydride. Should “said styrene-maleic anhydride copolymer” be changed to “said hydrolyzed styrene-maleic anhydride copolymer” in each of the claims?

(d) Claim 8 and claim 31 each recites general formula (I) that uses “X” and “Y”. The scope of each of the claims is confusing given that there is no disclosure what “X” and “Y” represent.

(e) Claim 13, which depends on claim 1, recites the limitation "said styrene-maleic anhydride copolymer" in line 1. There is insufficient antecedent basis for this limitation in the claim. It is suggested that the cited phrase is changed to “said hydrolyzed styrene-maleic anhydride copolymer”.

Similar suggestion is made in each of claims 14, 36, and 37 which each recite the limitation "said styrene-maleic anhydride copolymer".

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1-8, 13-18, 24-31, and 36-41 rejected under 35 U.S.C. 103(a) as being unpatentable over Koitabashi et al. (U.S. 2002/004317).

Koitabashi et al. disclose ink jet ink set comprising first ink comprising anionic dye, second ink comprising anionic dye and multivalent metal salt obtained from multivalent cation such as calcium magnesium, etc. that is present in amount of 0.01-10%, and third ink comprising first pigment that is a self-dispersed pigment, second pigment, dispersant that includes salt of styrene-maleic acid copolymer wherein the salt includes those obtained from alkali metal ions and ammonium ions, and not less than 0.7% surfactant. Each ink comprises water and 5-40% water-soluble organic solvent. It is further disclosed that the first ink and second inks are color inks while the third ink is a black ink. It is disclosed that the third ink comprises 0.1-15% first pigment and second pigment and that the ratio of the first pigment to the second pigment is 5/95 to 97/3 from which it is calculated that the third ink comprises approximately 0.005-14.55% first pigment, i.e. self-dispersing pigment. It is also disclosed that the ratio of the second pigment to dispersant is 5/0.5 to 5/2. Given that the ink comprises 0.1-15% pigment wherein the ratio of first

to second pigment is 5/95 to 97/3, it is calculated that the third ink comprises approximately 0.003-14.25% second pigment from which it is calculated that, based on the ratio of second pigment to dispersant, there is present approximately 0.0003-4% dispersant, i.e. salt of styrene-maleic acid copolymer. There is also disclosed a method wherein the ink is formulated with the salt of styrene-maleic acid copolymer (col.5, lines 3-17, col.10, lines 4-64, col.11, lines 37-60, col.12, lines 17-35 and 39-50, col.13, lines 39-49 and 52-65, col.14, lines 48-61, col.15, lines 19-33, 49, 53, 58, and 62, col.16, lines 30-36, col.17, lines 49-67, and col.18, lines 16-32). Given that maleic anhydride hydrolyzes to maleic acid and given that the presently claimed hydrolyzed styrene-maleic anhydride is hydrolyzed by MOH base after polymerizing to form a salt of polycarboxylic acid (see paragraph 20 of the present specification), it is clear that Koitabashi et al.'s salt of styrene-maleic acid copolymer is equivalent to the presently claimed hydrolyzed styrene-maleic anhydride. In light of this, it is clear that this styrene-maleic acid salt copolymer would intrinsically interact with the multivalent salt of the dye-based second ink, which would intrinsically improve black-to-color bleed as presently claimed.

While Koitabashi et al. fails to exemplify the presently claimed ink nor can the claimed ink be "clearly envisaged" from Koitabashi et al. as required to meet the standard of anticipation (cf. MPEP 2131.03), nevertheless, in light of the overlap between the claimed ink and the ink disclosed by Koitabashi et al., it is urged that it would have been within the bounds of routine experimentation, as well as the skill level of one of ordinary skill in the art, to use ink which is both disclosed by Koitabashi et al. and encompassed within the scope of the present claims and thereby arrive at the claimed invention.

8. Claims 11-12 and 34-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koitabashi et al. as applied to claims 1-8, 13-18, 24-31, and 36-41 above, and further in view of Momose et al. (U.S. 6,695,900).

The difference between Koitabashi et al. and the present claimed invention is the requirement in the claims of the molecular weight of the dispersant, i.e. salt of styrene-maleic acid copolymer.

Momose et al., which is drawn to ink jet ink, disclose the use dispersant including salt of styrene-maleic acid that possesses weight average molecular weight of 100-50,000 and disclose that if the molecular weight is lower, uneven printing occurs and if the molecular weight is higher, the ink is not suitable for ink jet printing and uniform solid printing is not attained (col.8, lines 37-40, 51-52, and 59-67).

In light of the motivation for using salt of styrene-maleic acid copolymer with specific weight average molecular weight disclosed by Momose et al. as described above, it therefore would have been obvious to one of ordinary skill in the art to use copolymer with such molecular weight, including that presently claimed, in Koitabashi et al. in order to produce ink that does not result in uneven printing and is suitable for ink jet printing, and thereby arrive at the claimed invention.

9. Claims 19, 22-23, 42, and 45-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koitabashi et al. as applied to claims 1-8, 13-18, 24-31, and 36-41 above, and further in view of Parazak (U.S. 6,281,267).

The difference between Koitabashi et al. and the present claimed invention is the requirement in the claims of organic acid.

Parazak, which is drawn to ink jet ink set, disclose the use of organic acid such as polyacrylic acid, glycolic acid, acetic acid, etc. in dye-based ink in order to aid in the pH and buffering capabilities of the ink (col.6, lines 45-59).

In light of the motivation for using organic acid disclosed by Parazak as described above, it therefore would have been obvious to one of ordinary skill in the art to use organic acid in the dye-based ink of Koitabashi et al. in order to produce ink with suitable pH, and thereby arrive at the claimed invention.

10. Claims 1-19, 22-42, and 45-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parazak (U.S. 6,281,267) in view of Zhu (U.S. 5,889,083).

Parazak discloses ink set comprising black ink comprising water, co-solvent, 0.001-10% self-dispersing pigment, 0.1-50% surfactant/amphiphile, and additive to improve various properties of the ink and color ink comprising water, dye, co-solvent, 1-10% multivalent salt wherein the cations of the salt include alkaline earth metals, transition metals, and lanthanides, and 1-10% organic acid such as polyacrylic acid, acetic acid, glycolic acid, citric acid, tartaric acid, etc. There is also disclosed method of controlling color bleed comprising formulating the above black ink (col.1, lines 7-8, col.2, lines 47-49, col.6, lines 25-67, col.7, line 55-col.8, line 51, and col.9, lines 9-10 and 41-49).

With respect to the “consisting essentially of” claim language recited with respect to the polymer, on the one hand, although Parazak requires the use of acrylate polymer, in light of the

open claim language with respect to the ink, i.e. “comprising”, it is clear that the ink is open to the inclusion of additional polymer including acrylate polymer as disclosed by Parazak.

On the other hand, while it is recognized that the phrase “consisting essentially of” narrows the scope of the claims to the specified materials and those which do not materially affect the basic and novel characteristics of the claimed invention, absent a clear indication of what the basic and novel characteristics are, “consisting essentially of” is construed as equivalent to “comprising”. Further, the burden is on the applicant to show that the additional ingredients in the prior art, i.e. acrylate resin, would in fact be excluded from the claims and that such ingredients would materially change the characteristics of the applicant’s invention, See MPEP 2111.03.

The difference between Parazak and the present claimed invention is the requirement in the claims of hydrolyzed styrene-maleic anhydride copolymer.

Zhu, which is drawn to ink jet ink, disclose the use of hydrolyzed styrene-maleic anhydride copolymer wherein the ratio of styrene to maleic anhydride is 1:1 and the copolymer possesses weight average molecular weight of 1,500-50,000. The motivation for using such polymer is as a binder in order to fix the colorant of the ink to substrate and to provide abrasion protection (col.4, lines 47-54 and 62-67, col.5, line 63, and col.6, lines 5-9 and 31-39).

Given that the combination of Parazak with Zhu disclose ink set comprising pigment-based ink comprising hydrolyzed styrene-maleic anhydride copolymer and dye-based ink comprising multivalent salt and organic acid as presently claimed, it is clear that the styrene-maleic anhydride copolymer would intrinsically interact with the salt or organic acid as presently claimed which would intrinsically result in improved black-to-color bleed as presently claimed.

In light of the motivation for using hydrolyzed styrene-maleic anhydride copolymer disclosed by Zhu as described above, it therefore would have been obvious to one of ordinary skill in the art to use hydrolyzed styrene-maleic anhydride copolymer as additive in the black ink of Parazak in order to produce ink with good abrasion resistance wherein colorant is fixed to substrate, and thereby arrive at the claimed invention.

Response to Arguments

11. Applicants' arguments filed 8/28/06 have been fully considered but they are not persuasive.

Specifically, applicants argue that while Zhu discloses hydrolyzed styrene-maleic anhydride as presently claimed, the hydrolyzed styrene-maleic anhydride is used to fix the colorant of a single ink on a substrate which is different than the present invention which uses the hydrolyzed styrene-maleic anhydride to prevent bleed between color ink and black ink. Applicants also argue that there is nothing in Zhu that discloses or suggests that hydrolyzed styrene-maleic anhydride would prevent bleed between color ink and black ink and that there is no disclosure in Zhu of ink set.

It is agreed that Zhu discloses the use of hydrolyzed styrene-maleic anhydride in order to fix colorant to substrate and that there is no disclosure that hydrolyzed styrene-maleic anhydride is used to control bleed or even any disclosure of ink set comprising black and color ink as presently claimed.

While there is no disclosure in Zhu that the hydrolyzed styrene-maleic anhydride is used to control bleed, it is noted that obviousness under 103 is not negated because the motivation to

arrive at the claimed invention as disclosed by the prior art does not agree with appellant's motivation. *In re Dillon*, 16 USPQ2d 1897 (Fed. Cir. 1990), *In re Tomlinson*, 150 USPQ 623 (CCPA 1996).

It is also noted that Parazak discloses ink comprising black ink comprising water, co-solvent, self-dispersing pigment, surfactant, and additive to improve various properties of the ink and color ink that comprises water, dye, co-solvent, multivalent salt, and organic acid. However, there is no disclosure of hydrolyzed styrene-maleic anhydride. Zhu, which is also drawn to ink jet inks, disclose the use of hydrolyzed styrene-maleic anhydride to fix colorant to substrate, i.e. the hydrolyzed styrene-maleic anhydride is used as an additive to improve the fixing property of the ink. Although there is no disclosure that the organic acid or multivalent salt interacts with hydrolyzed styrene-maleic anhydride to control black-to-color bleed, given that Parazak in combination with Zhu discloses ink set identical to that presently claimed, it is clear that the organic acid or salt would intrinsically interact with hydrolyzed styrene-maleic anhydride which would intrinsically result in improved black-to-color bleed.

Further, although there is no disclosure in Zhu of ink set, Zhu is used as teaching reference, and therefore, it is not necessary for this secondary reference to contain all the features of the presently claimed invention, *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), *In re Keller* 624 F.2d 413, 208 USPQ 871, 881 (CCPA 1981). Rather this reference teaches a certain concept, namely, the use of hydrolyzed styrene-maleic anhydride in ink jet inks, and in combination with the primary reference, discloses the presently claimed invention.

Applicants argue that there is no motivation to combine Parazak with Zhu given that the black ink of Parazak contains acrylate polymer while the presently claimed black ink comprises hydrolyzed styrene-maleic anhydride.

While Parazak requires the use of acrylate resin, it is significant to note that col.8, line 66-col.9, line 1 and col.9, lines 9-11 of Parazak discloses the use of various types of additives to optimize the properties of the ink and that such additives include non-acrylic polymer. Thus, the ink of Parazak would comprise polymer in addition to the acrylate resin.

Zhu, which is drawn to ink jet ink, disclose the use of hydrolyzed styrene-maleic anhydride in order to fix colorant to substrate, i.e. is used as an ink additive to improve fixing property of the ink. Thus, it is the examiner's position that there is motivation to combine Parazak with Zhu and that the hydrolyzed styrene-maleic anhydride is used in addition to the acrylate polymer disclosed by Parazak.

Applicants argue that Zhu requires combination of hydrolyzed styrene-maleic anhydride and wax.

While it is agreed that Zhu discloses combination of hydrolyzed styrene-maleic anhydride and wax provides abrasion resistance, on the one hand, Zhu is only used for its teaching of hydrolyzed styrene-maleic anhydride in inks wherein Zhu teaches that the use of hydrolyzed styrene-maleic anhydride fixes colorant to substrate. On the other hand, in light of the open language of the present claims, i.e. "comprising", the use of wax is clearly not excluded from the scope of the present claims.

Applicants argue that the examiner has not established a *prima facie* case of obviousness given that there is no motivation in either Parazak or Zhu to combine the references and thus, there can be no reasonable expectation of success and further given that the references fail to teach all the claimed limitations given that there is no disclosure in Zhu regarding controlling black-to-color bleed between pigment-based ink and dye-based ink as presently claimed. Applicants also argue that while Zhu discloses the motivation for using hydrolyzed styrene-maleic anhydride as binder to fix the colorant of the ink to the substrate and to provide abrasion resistance, this is in no way suggestive of controlling black-to-color bleed.

However, it is noted that Parazak discloses ink comprising black ink comprising water, co-solvent, self-dispersing pigment, surfactant, and additive, including polymer, to improve various properties of the ink and color ink that comprises water, co-solvent, multivalent salt, and organic acid. There is no disclosure of hydrolyzed styrene-maleic anhydride. Zhu, which is also drawn to pigment-based ink jet inks, disclose the use of hydrolyzed styrene-maleic anhydride to fix colorant to substrate. Thus, there is motivation to combine Parazak with Zhu, i.e. to improve fixing property of the pigment-based ink. Further, it is noted that the suggestion or desirability to make such modification is found in Parazak itself which discloses the use of additional non-acrylic polymer to improve various properties of the ink and thus, one of ordinary skill in the art would have a reasonable expectation of success. Additionally, it is the examiner's position that Parazak in view of Zhu do meet all the requirements of the present claims, given that it is the examiner's position that the hydrolyzed styrene-maleic anhydride would intrinsically interact with the multivalent salt or organic acid of Parazak.

Thus, given that Parazak discloses that the pigment-based ink comprises additive, including polymer, to improve various properties of the ink, given that Zhu disclose the use of hydrolyzed styrene-maleic anhydride copolymer in pigment-based ink and disclose motivation for using such copolymer, namely, to fix colorant to substrate, i.e. improve adhesion of the ink, and given that Zhu discloses using hydrolyzed styrene-maleic anhydride in combination with other polymers including acrylate polymer of the type disclosed by Parazak, it is the examiner's position that a *prima facie* case of obviousness has been established.

In response to the examiner's position that the hydrolyzed styrene-maleic anhydride of Zhu would intrinsically interact with the multivalent salt or organic acid of Parazak to control black-to-color bleed, applicants argue that such position is based on hindsight.

However, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). Given that the combination of Parazak and Zhu disclose ink set comprising black ink comprising hydrolyzed styrene-maleic anhydride as presently claimed and color ink comprising multivalent salt and organic acid as presently claimed, it would appear that the hydrolyzed styrene-maleic anhydride would necessarily intrinsically interact with the salt and/or organic acid. While there is no explicit disclosure of improving the black-to-color bleed using hydrolyzed styrene-maleic anhydride and multivalent salt or organic acid in either Parazak or Zhu, given that the ink

contains hydrolyzed styrene-maleic anhydride, multivalent salt, and organic acid as presently claimed, it is the examiner's position that such interaction would necessarily intrinsically result in improved black-to-color bleed.

As set forth in MPEP 2112.01, "where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established", *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). Further, "products of identical chemical composition can not have mutually exclusive properties. A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present.", *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Thus, given that Parazak in combination with Zhu teach ink set comprising pigment-based ink comprising hydrolyzed styrene-maleic anhydride and color ink comprising multivalent salt and organic acid as presently claimed, it is the examiner's position that the composition would therefore also have improved black-to-color bleed as presently claimed.

Applicants also argue that there is no disclosure in Zhu of self-dispersing pigment. However, note that while Zhu do not disclose all the features of the present claimed invention, Zhu is used as teaching reference, and therefore, it is not necessary for this secondary reference to contain all the features of the presently claimed invention, *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), *In re Keller* 624 F.2d 413, 208 USPQ 871, 881 (CCPA 1981).

Rather this reference teaches a certain concept, namely, the use of hydrolyzed styrene-maleic anhydride in ink jet ink comprising pigment in order to fix the ink to substrate, and in combination with the primary reference, discloses the presently claimed invention.

Applicants also argue that Zhu requires the use of wax while Parazak requires the use of acrylate resin which is outside the scope of the present claims which now recite “consisting essentially of” transitional language.

With respect to the “consisting essentially of” claim language recited with respect to the polymer, on the one hand, although Parazak requires the use of acrylate polymer and Zhu requires the use of wax which may be polymeric, in light of the open claim language with respect to the ink, i.e. “comprising”, it is clear that the ink is open to the inclusion of additional ingredients including acrylate polymer as disclosed by Parazak and wax as disclosed by Zhu. Further, it is noted that the “consisting essentially of” claim language is recited with respect to the polymer, which would not exclude wax.

On the other hand, while it is recognized that the phrase “consisting essentially of” narrows the scope of the claims to the specified materials and those which do not materially affect the basic and novel characteristics of the claimed invention, absent a clear indication of what the basic and novel characteristics are, “consisting essentially of” is construed as equivalent to “comprising”. Further, the burden is on the applicant to show that the additional ingredients in the prior art, i.e. acrylate resin and wax, would in fact be excluded from the claims and that such ingredients would materially change the characteristics of the applicant’s invention, See MPEP 2111.03.

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Suga et al. (U.S. 5,734,403) and Asaki et al. (U.S. 6,688,730) each disclose ink set comprising pigment-based black ink comprising salt of styrene-maleic acid copolymer and dye-based color ink comprising multivalent salt, however, there is no disclosure that the black ink comprises self-dispersing pigment as presently claimed.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1714

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Callie E. Shosho
Primary Examiner
Art Unit 1714

CS
11/12/06